

## DOCUMENT PROCESS SYSTEM

This application is based upon and claims the benefit of priority from the prior Japanese Patent Application No. 11-235489, filed August 23, 1999, the entire contents of which are incorporated herein by reference.

10           The present invention relates to a document  
process system wherein documents, photographs,  
drawings, etc. are scanned and registered/transmitted  
to document management systems as electronic documents.

In conventional document process apparatuses,  
15 a document is normally scanned by a single operation  
and the scanned document is registered/transmitted  
to a single document management system as a single  
document.

20 In a case where a document scanned by a single operation is registered/transmitted to a document management system as a plurality of documents, the scanned document is divided by a specified method as in a case of a pattern-document process apparatus used for a special purpose.

25           In a case where a document scanned by a single  
operation is registered/transmitted to a plurality of  
document management systems as a single document,

copies of the document are produced and the same data is registered/transmitted to the plural document management systems.

Where a variety of documents of many pages are scanned and registered/transmitted to a plurality of document management systems as electronic documents, an electronic document process rule, for example, for registering/transmitting electronic documents to the plural document management systems is predetermined and the documents are scanned and processed according to this rule. Thereby, the number of scan operations is reduced, and more efficient document processing is achieved.

In this document process method, however, the methods for predetermining the electronic document process rule for reducing the number of scan operations do not include a method for dividing a document scanned by a single scan operation into a plurality of documents. Because of this, the user has to divide a document at the time of scanning and to repeat the scan operation for each of divisions of the document.

Moreover, it is not possible that the document scanned by a single operation is divided and the divided documents are registered/transmitted to a plurality of document management systems. Furthermore, it is not possible that documents scanned by plural scan operations are coupled and the coupled

In the case of the pattern document process apparatus used for a special purpose, the document scanned by a single operation can be registered as a plurality of documents. In this case, however, a mechanism for dividing the scanned document is incorporated in a process for registering documents, and this apparatus differs in objective from the apparatus for processing electronic documents by referring to the predetermined process rule. Consequently, there are problems: difficulty in changing the process rule by the user, a low degree of freedom of the process rule, and infeasibility of application to the processing of non-pattern documents.

BRIEF SUMMARY OF THE INVENTION

25           The object of the present invention is to provide  
a document process system capable of enhancing  
flexibility of document processing and realizing

an efficient scan operation.

In order to achieve this object, according to an aspect of the present invention, there is provided a document process system for reading  
5 a document, a photograph, a drawing, or the like, and registering/transmitting read data as an electronic document into a plurality of document management systems, the system comprising:

input section for inputting a condition for  
10 dividing/coupling the read electronic document and reconstructing the electronic document, and document registration information;

document division/coupling process section for  
dividing/coupling the electronic document read by a  
15 single operation, on the basis of the condition input by the input section;

buffer for temporarily storing the electronic  
document divided/coupled by the document division/  
coupling process section, and the document registration  
20 information input by the input section; and

document register process section for executing  
document registration to a predetermined one of the  
document management systems on the basis of the  
electronic document and the document registration  
25 information stored in the buffer.

According to another aspect of the invention, there is provided a document process system for

scanning a document, a photograph, a drawing, or the like, and registering/transmitting an acquired scan document as an electronic document into a plurality of document management systems, the system comprising:

5           a division/coupling set information input/output  
section for setting a condition for dividing/coupling  
the scan document and reconstructing a document;

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        a division/coupling set information database for
storing the set condition;

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10           a division/coupling set process section for  
storing the condition set by an operator through  
the division/coupling set information input/output  
section into the division/coupling set information  
database; and

15           a division/coupling process section for executing  
a division/coupling process for the scan document by  
referring to contents in the division/coupling set  
information database,

wherein the document is divided/coupled on the basis of the condition preset through the division/coupling set information input/output section and stored in the division/coupling set information database.

According to still another aspect of the invention, there is provided a document process system for scanning a document, a photograph, a drawing, or the like, and registering/transmitting an acquired scan

document as an electronic document into a plurality of document management systems, the system comprising:

5 a scan parameter recognition section for discriminating scan-related information collected by a scan process section at a time of document scan, and generating scan parameter data including information necessary for a division/coupling process;

a scan parameter database for storing the scan parameter data; and

10 a division/coupling process section for executing the division/coupling process for the scan document by referring to contents in the scan parameter database on an as-needed basis,

15 wherein the division/coupling process is automatically executed by determining the condition for document division/coupling on the basis of the data stored in the scan parameter database.

20 According to still another aspect of the invention, there is provided a document process system for scanning a document, a photograph, a drawing, or the like, and registering/transmitting an acquired scan document as an electronic document into a plurality of document management systems, the system comprising:

25 a division/coupling set information input/output section for setting a condition for dividing the scan document and registering the divided scan documents into a plurality of document management systems;

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a division/coupling set information database for storing the set condition;

5 a division/coupling set process section for storing the condition set by an operator through the division/coupling set information input/output section into the division/coupling set information database; and

10 a division/coupling process section for executing a division/coupling process for the scan document by referring to contents in the division/coupling set information database,

15 wherein the document is divided/coupled to be registered/transmitted to the plurality of document management systems, on the basis of the condition preset through the division/coupling set information input/output section and stored in the division/coupling set information database.

20 Additional objects and advantages of the invention will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by practice of the invention. The objects and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations particularly pointed out hereinafter.

25 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

The accompanying drawings, which are incorporated in and constitute a part of the specification,

illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description of the preferred embodiments given below, serve to explain the principles of the invention.

FIG. 1 is a block diagram showing the structure of a document process system according to an embodiment of the present invention;

FIG. 2 is a view for describing an outline of processes in the document process system according to the embodiment;

FIG. 3 shows an example of a scheme of data stored in a scan parameter database (DB);

FIG. 4 shows an example of a scheme of data stored in a division/coupling set information DB;

FIGS. 5A and 5B show an example of scheme of data stored in a division/coupling buffer;

FIG. 6 is a flow chart illustrating a process carried out in a division/coupling process section;

FIG. 7 shows an example of division/coupling set information;

FIG. 8 shows an example of division/coupling set information;

FIGS. 9A and 9B show examples of display of division/coupling set information; and

FIG. 10 shows an example of display of an division/coupling inquiry.



# DETAILED DESCRIPTION OF THE INVENTION

An embodiment of the present invention will now be described with reference to the accompanying drawings.

FIG. 1 is a block diagram showing the structure of a document process system according to an embodiment of the present invention. A document process system 1 is connected to two or more document management systems 2 over a communication line.

Specifically, the document process system 1 comprises a document division/coupling process section 3, a document register process section 4, a scan section 5, a division/coupling set information input/output (I/O) section 6, a division/coupling set information database (DB) 7, a division/coupling buffer 8, and a scan parameter DB 9.

The document division/coupling process section 3 is a module which realizes a document division/coupling function according to the present invention. The document register process section 4 is a module which realizes a document register/document division register function according to the invention. Thereby, processes illustrated in FIG. 2 are carried out, as will be described later.

The scan section 5 is an interface for taking in a document. The division/coupling set information I/O section 6 is an interface for an input operation relating to document division/coupling setting.

A description of the scan section 5 may be omitted since it is the same as a prior-art scan section. Examples of display on the division/coupling set information I/O section 6 will be described later.

5       There is no limitations to the mode in which a display  
portion of the division/coupling set information I/O  
section 6 is provided. For example, the display  
portion may be provided on a scan apparatus including  
the scan section 5. Alternatively, a virtual display  
0       process section such as a Web server may be provided in  
the document process system 1 and a remote browser may,  
in actuality, be displayed.

The division/coupling set information DB 7 stores rules for dividing/coupling document(s).

15       The division/coupling buffer 8 is a storage area  
required in a process of registering reconstructed  
divided/coupled documents into the document management  
systems 2. The scan parameter DB 9 stores information  
relating to a document scan state in the scan  
20       section 5. The data schemes in the division/coupling  
set information DB 7, division/coupling buffer 8 and  
scan parameter DB 9 will be described later.

FIG. 2 is a view for describing an outline of processes in the document process system 1 according to the embodiment. In this system, a document is taken in by a scan process section 10 and converted to electronic scan data 11. Following the scan process

section 10, a scan parameter recognition section 12 is executed and information relating to the scan state, including information necessary for a document division/coupling process, is stored in the scan parameter DB 9. The scan process section 10 and scan parameter recognition section 12 correspond to the scan section 5 in FIG. 1.

Then, the scan data is subjected to a division/coupling process in a division/coupling process section 13. When this process is executed, the division/coupling process section 13 refers to the information stored in the division/coupling set information DB 7 and scan parameter DB 9. Based on the set information, the process is executed. The information stored in the division/coupling set information DB 7 is information which is registered by a division/coupling set process section 14 on the basis of data input by the operator through the division/coupling set information I/O section (hereinafter referred to as "I/O section") 6. Where information input by the operator is necessary when the division/coupling set process section 14 is to carry out the process, a division/coupling inquire process section 15 causes the I/O section 6 to display an information content for prompting the information input. In this case, the input information is reflected on the document processing.

The division/coupling process section 13,  
division/coupling set process section 14 and  
division/coupling inquire process section 15  
correspond to the document division/coupling  
process section 3 in FIG. 1.

The document data processed in the  
division/coupling process section 13 is temporarily  
stored in the division/coupling buffer 8 and then  
registered in each document management system 2 through  
the document register process section 4.

FIG. 3 shows an example of a scheme of data stored  
in the scan parameter DB 9. The scan parameter DB 9  
stores information selected by an auto-discrimination  
function of the scan process section 10 when a document  
is scanned, and information designated by the operator  
when a document is scanned.

FIG. 4 shows an example of a scheme of data  
stored in the division/coupling set information DB 7.  
The division/coupling set information DB 7 stores items  
of "DOCUMENT PROCESS" 16, "DOCUMENT PROCESS UNIT" 17,  
"EXCESS DOCUMENT PROCESS" 18, "REGISTER PROCESS" 19 and  
"REGISTRATION DESTINATION" 20.

Item "DOCUMENT PROCESS" 16 designates a document  
processing method, that is, division, coupling,  
division/coupling, or non-processing. Item "DOCUMENT  
PROCESS UNIT" 17 designates a process unit for  
a process designated by "DOCUMENT PROCESS."

Item "EXCESS DOCUMENT PROCESS" 18 designates a process content to be executed for an excess document (or excess page(s)) which may remain as a result of the division/coupling of a document on the basis of a document process unit. Item "REGISTER PROCESS" 19 designates a document registration method, that is, execution of division-registration or non-execution of division-registration. If division-registration is not executed, the document management system at a registration destination is designated. Item "REGISTRATION DESTINATION" 20 designates each registration destination and a registration condition for division-registration when the division-registration has been designated in item "REGISTER PROCESS."

FIGS. 5A and 5B show an example of scheme of data stored in the division/coupling buffer 8. The division/coupling buffer 8 comprises a data table 21 for managing document data itself, and a registration information table 22 storing registration information on document data, etc.

The registration information table 22 shown in FIG. 5A stores a scan ID 23, which is an identifier for a scan execution unit at the time of a scan operation; a document ID 24, which is an identifier for a document unit obtained after execution of the division/coupling process; a state 25 indicating a current state of each

document in the buffer; and a registration destination 26 representing a registration destination of each document.

5       The data table 21 shown in FIG. 5B stores  
a document ID 27 which is an identifier for a document unit obtained after the execution of the division/coupling process, and data 28 which is document data itself of each document.

10       A process operation in the division/coupling  
process section 13 with the above structure will now be described with reference to a flow chart of FIG. 6.

15       To start with, in step 29, item "DOCUMENT PROCESS" 16 in the division/coupling set information DB 7 is referred to. If a document division/coupling process is necessary, control goes to step 30. If not, control goes to step 36.

      In step 30, division/coupling set information from the division/coupling set information DB 7 is referred to.

20       In step 31, item "DOCUMENT PROCESS UNIT" 17 in the division/coupling set information DB 7 is referred to. If it is necessary to refer to the scan parameter, control goes to step 32. If not, control goes to step 33.

25       In step 32, the scan parameter from the scan parameter DB 9 is referred to.

      In step 33, item "EXCESS DOCUMENT PROCESS" 18

In the example in FIG. 4, a process rule "a document is divided to produce division documents in units of 4 pages, and the division documents are registered" is determined. Assume that a document of 10 pages in total (consisting of four A4-size pages, four B5-size pages, and two B4-size pages in the named order) has been scanned (this case corresponding to scan ID = 2 in FIG. 5A). If the obtained scan data is divided according to the process rule in FIG. 4, two documents each consisting of 4 pages and one document

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registered into the document management system A according to the registration rule in FIG. 7.

Of the scan parameters in FIG. 3, the "SCAN TYPE" is used as a factor in automatically determining the number of pages of "one sheet" designated in FIG. 7.

A document process with division/coupling set information shown in FIG. 8 will now be described.

In the example in FIG. 8, a process rule "documents are coupled to produce documents in units of 4 pages, and the coupled documents are registered" is determined. Assume that a document of 2 pages in total (this case corresponding to scan ID = 3 in FIG. 5A) has been executed. According to the process rule indicated in FIG. 8, the scan data is processed to produce a document consisting of 2 pages. In this case, since a document of 4 pages is not produced, this document is stored in the buffer as "an excess document" in the state of "coupling" (document ID = 6 in FIG. 5A). Since item "EXCESS DOCUMENT PROCESS" in FIG. 8 designates "INQUIRE" to the operator, a user interface as shown in FIG. 10 is displayed.

As has been described above, according to the embodiment of the present invention, a plurality of documents can be registered by a single operation ("facility in operation").

Different documents can be registered into a plurality of document management systems by a single

operation ("facility in operation").

A plurality of documents can be coupled into one document and this document can be registered ("facility in operation" and "flexibility of process").

5 Rules relating to document processing can be input in advance ("flexibility and diversity of process").

A process content for a document can be automatically determined ("flexibility and diversity of process").

10 Destinations of registration of divided documents can be individually designated ("facility in operation" and "flexibility of process").

15 Information necessary for document processing can be acquired from the operator on the spot ("flexibility and diversity of process").

20 Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details and representative embodiments shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalents.